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TITLE: INTEGRATED OPTICAL HEAD DEVICE

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, H01S005/026

ABSTRACT:

PROBLEM TO BE SOLVED: To form spots of **three semiconductor lasers** having different wavelengths on an **optical disk with a low aberration in an optical** head for recording and reproducing different kinds of **optical disks such as CD, DVD and disk** for flue-violet semiconductor laser with one device, and to realize miniaturization, thinning, and integration of the head simultaneously.

SOLUTION: The positions of two light emitting points of a double wavelength monolithic GaAs semiconductor laser and a light emitting point of a

GaN
semiconductor laser having a wavelength of blue-violet are formed in left-right
asymmetry, and the positions of three semiconductor laser light emitting points
of different wavelengths are arranged closely, and thus the head is integrated
by performing index-alignment on an OEIC, a PD pattern and a substrate with a
reflecting mirror.

* NOTICES *

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CLAIMS

[Claim(s)]
[Claim 1] The wavelength of 780nm, and monolithic GaAs semiconductor laser with two 650nm different light-emitting parts, By the optical head in which the accumulation module which consists of a semi-conductor substrate which formed in the monolithic the automatic-focusing detection which has sensibility in the wavelength which corresponds GaN semiconductor laser with a wavelength of 410nm, and the optical detector for tracking detection was carried In the equipment which carries out record playback of the optical disk the point of the semiconductor laser of these two kinds emitting light Accumulation light head equipment characterized by having brought close mutually and arranging so that it may be within limits by which it forms in a right-and-left unsymmetrical location to the center of said GaAs semiconductor laser and said GaN semiconductor laser, and the field angle of this optical head optical system permits these two or more points emitting light.
[Claim 2] Accumulation light head equipment characterized by attaching the mark for alignment to these two or more semiconductor laser and either of these semi-conductor substrates, or both in accumulation light head equipment according to claim 1.
[Claim 3] Accumulation light head equipment characterized by having carried out etching processing of the slanting mirror, and attaching the mark for alignment to this semi-conductor substrate at these two or more semiconductor laser and either of these semi-conductor substrates, or both in accumulation light head equipment according to claim 1.
[Claim 4] This semi-conductor substrate into which the amplifier which amplifies the photocurrent from this optical detector was formed in this semi-conductor substrate in accumulation light head equipment according to claim 1 at the monolithic, and the slanting mirror was processed and either of these semiconductor laser, or accumulation light head equipment characterized by attaching the mark for alignment to both.
[Claim 5] Accumulation light head equipment characterized by ****** which attaches the mark for alignment attached to this semi-conductor substrate into which this optical detector and photocurrent amplifier were formed in the monolithic, and the slanting mirror was processed in accumulation light head equipment according to claim 1, and this semiconductor laser to the field where this substrate touches this semiconductor laser, and carries out alignment by the image processing by the infrared transmitted light or the reflected light.
[Claim 6] Accumulation light head equipment characterized by carrying out hybrid accumulation of the prism mirror which attaches the mark for alignment to the substrate which attached the mark for alignment and formed the optical detector in the monolithic in accumulation light head equipment according to claim 2, and has a 45-degree inclination on the heat dissipation substrate of silicon carbide.
[Claim 7] The point of said GaAs semiconductor laser emitting light is accumulation light head equipment according to claim 1 characterized by being brought near and formed in an edge rather than the center of a GaAs laser chip.
[Claim 8] The point of said GaN semiconductor laser emitting light is accumulation light head equipment according to claim 1 characterized by being brought near and formed in an edge rather than

the center of a GaN laser chip.
[Claim 9] This semi-conductor substrate into which the amplifier which amplifies the photocurrent from this optical detector was carried in this semi-conductor substrate in accumulation light head equipment according to claim 1 at the hybrid, and the slanting mirror was processed and either of these semiconductor laser, or accumulation light head equipment characterized by attaching the mark for alignment to both.

[Translation done.]

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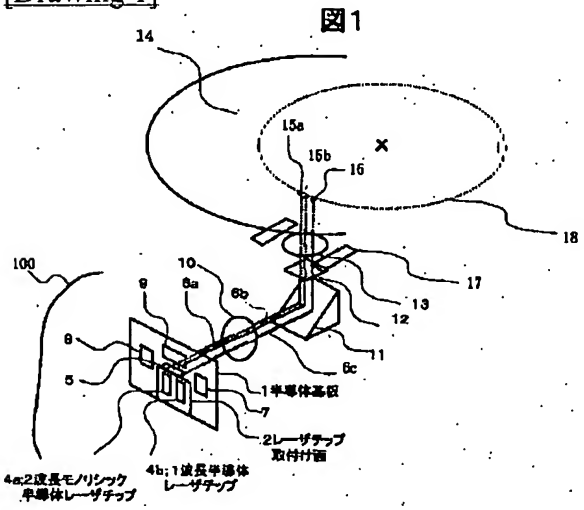
DRAWINGS

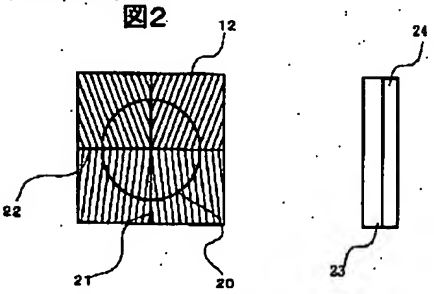
[Drawing 1]

図1



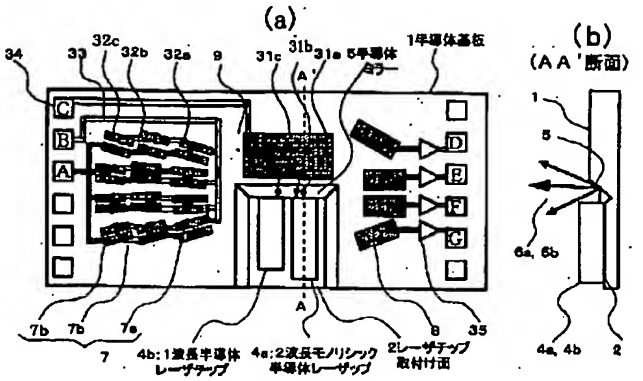
[Drawing 2]

図2



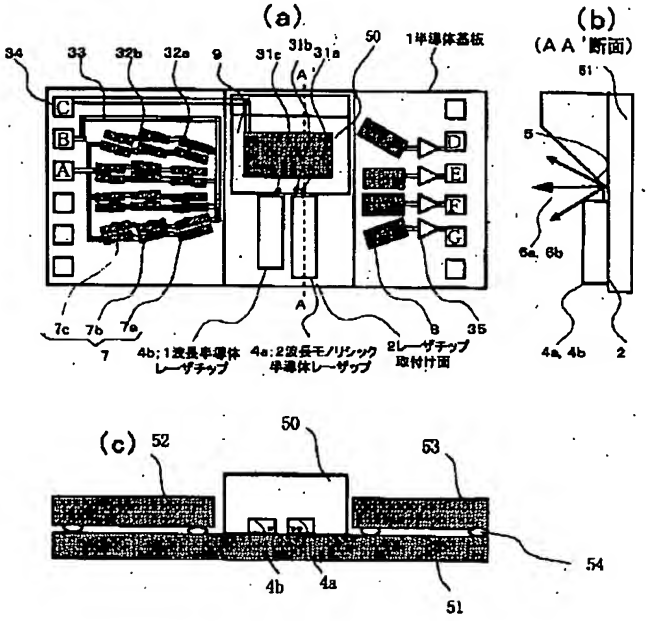
[Drawing 3]

図3



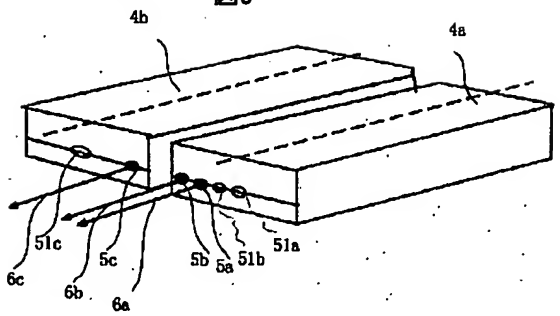
[Drawing 4]

図4



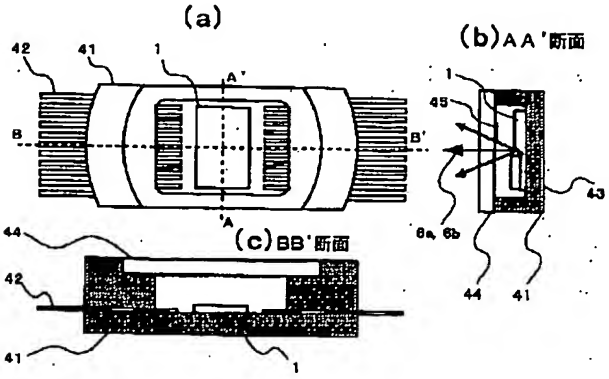
[Drawing 5]

図5



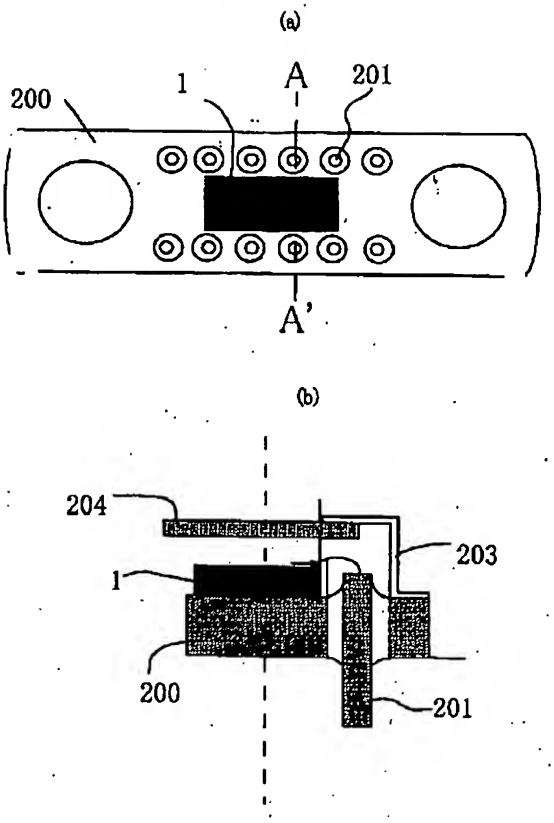
[Drawing 7]

図7



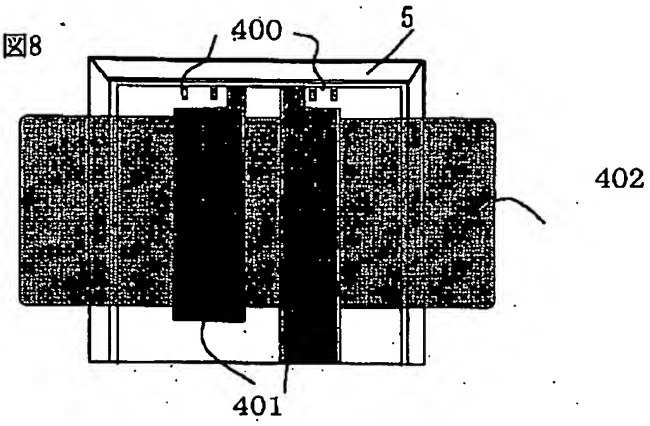
[Drawing 6]

図6



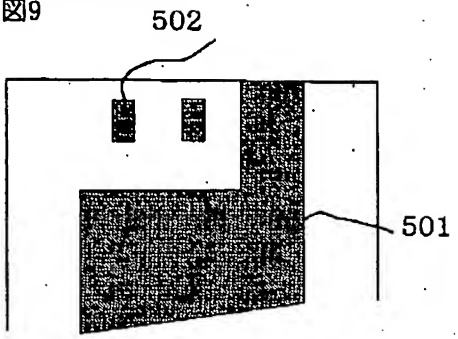
[Drawing 8]

図8



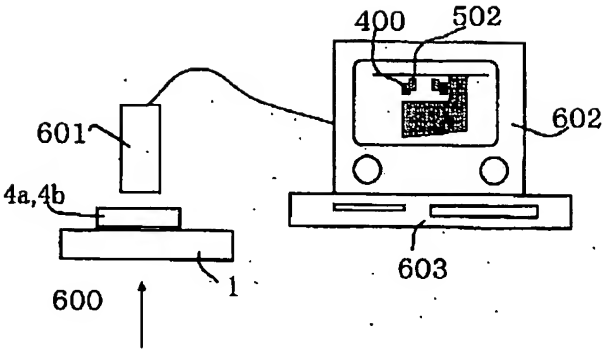
[Drawing 9]

図9



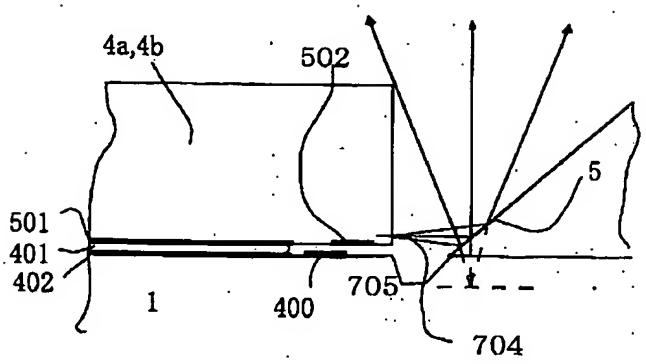
[Drawing 10]

図10



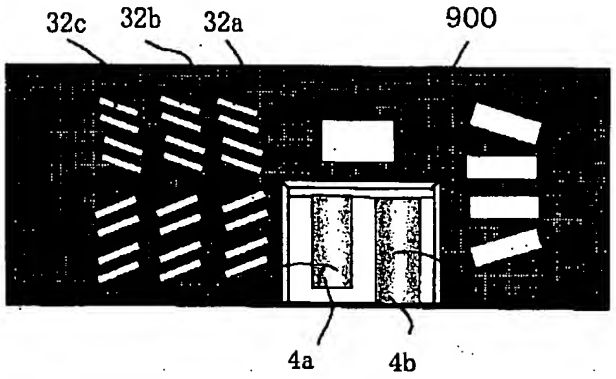
[Drawing 11]

図11



[Drawing 12]

図12



[Translation done.]